

The Basel Lectures:

**International Trade, Resource Use and the Environment**  
(17691-01, 3 Credit Points)

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This short course of 8 lectures investigates the links between international trade, natural resource use and the environment. The lectures will attempt to answer five key questions. These are

1. Why are natural resources difficult to manage? What is the underlying market failure requiring government involvement? What is the solution?
2. What are the impacts of international trade on a country with weak or poor management of its natural resources? Is there evidence that international trade has led to severe overuse of natural resources?
3. Do countries with weak protection for the environment have a natural cost advantage in world markets? Is there evidence that international trade is a common driver of resource overuse worldwide?
4. Can trade and globalization hasten extinction? Are these extinctions more likely to come from over-harvesting or via habitat destruction? Could globalization usher in a mass extinction event?
5. Does access to international markets make the governance and regulation of natural resource industries easier or harder for governments?

This course is offered by the Faculty of Business and Economics of the University of Basel and is part of the “Guest Professorship of Globalization – Internationalization of the Economy”.

## **1. Method**

These questions are addressed and answered in a series of 8 lectures. I will introduce a very simple general equilibrium model of resource use and employ it, and its variations, throughout. It will be used initially to demonstrate just how differently an economy with existing externalities responds to shocks such as technological progress or the ability to trade internationally. Next, I will discuss the conditions under which trade can harm resources and present two case studies – one historical and one ongoing – where trade has been identified as key to resource overuse. I will also discuss the relationship between globalization and extinction using our two case studies and introduce new sources of data for us to discuss. While international trade can create difficulties it also provides opportunities for countries to improve resource management given the income gains it provides. If time permits, I will discuss

conditions under which property rights enforcement can be expected to improve with changes in technologies or the value of resources, and end with a discussion of empirical work evaluating whether trade improves or worsens the state of resources across many countries.

The strength of the lectures comes from employing one unifying framework within which to discuss the issues, and the integration of empirical work directly on point to help answer key questions that cannot be resolved by theory.

A set of readings for the course is given below. Some changes – additions and deletions - may be made to speed up or slow down the pace of the course. All the necessary (bolded) readings will be provided on the course web site (ADAM); and, to the extent possible, lecture slides will also be made available to students.

## **2. Grading**

There will be a final exam plus a paper requirement.

The final exam will be scheduled in the first lecture of the class and be posted thereafter. I will take place **towards the end of May 2023**. It will consist of both analytical questions and an essay question covering the course material.

The paper is a short critical analysis of a scholarly or popular article discussing some issue with regard to the economy's interaction with the environment. Your discussion and critique must use, at least implicitly, the tools and logic developed in the course. The papers should not be longer than 8 pages (without bibliography).

The paper and the final exam will be graded and each counts 50% of the final grade.

In all cases students must check with the instructor as to the suitability of the article they propose to examine, before starting to write their paper. The paper **is due June 30<sup>th</sup>**, approximately one month after the final exam.

## References

Anything in bold will necessarily be covered in class and should be read.

The other articles are listed for your convenience in choosing a paper topic. Students can choose freely from this list, but still need to check with the instructor to ensure no overlap and suitability.

**G Hardin. 1968. "The Tragedy of the Commons".** *Science*, vol. 162, pp.1243-1248, 1968.

H. S. Gordon, "The Economic Theory of a Common-Property Resource: The Fishery," *J. Polit. Econ.*, 1954.

R. Brooks, M. Murray, S. Salant, and J. C. Weise, "When is the standard analysis of common property extraction under free access correct?: A game-theoretic justification for non-game-theoretic analyses," *J. Polit. Econ.*, vol. 107, no. 4, pp. 843–858, 1999.

T. Fally, and J. Sayre, Commodity Trade Matters, mimeo, University of California Berkeley, March, 2018.

**Brander, J.A. and M.S. Taylor, "International Trade and Open-Access Renewable Resources: The Small Open Economy Case,"** *Canadian Journal of Economics, Canadian Economics Association*, August 1997, vol. 30(3), pp. 526-52.

G. Chichilnisky, "North-South Trade and the Global Environment," *Am. Econ. Rev.*, vol. 84, no. 4, pp. 851–874, 1994.

**M. Scott Taylor, "Buffalo Hunt: International Trade and the Virtual Extinction of the North American Bison,"** *American Economic Review*, vol. 101(7), December 2011, pp. 1-36.

E., Barbier, Edward Bulte, "Trade and Renewable Resources in a Second Best World: An Overview," *Environ. Resour. Econ.*, vol. 30, no. 4, pp. 423–463, 2005.

**T. Erhardt, and R. Weder, Shark Hunting: International Trade and the Imminent Extinction of Heterogeneous Species, 2016.**

**Brander, J.A. and M.S. Taylor, "International trade between consumer and conservationist countries,"** *Resource and Energy Economics, Elsevier*, November 1997. vol. 19(4), pp. 267-297.

A. Scott, "The Fishery: The Objectives of Sole Ownership," *J. Polit. Econ.*, pp. 116–124, 1955.

**H. Bohn, Deacon Robert T., "Ownership risk, investment, and the use of natural resources,"** *Am. Econ. Rev.*, vol. 90, no. 03, pp. 526–549, 2000.

**T. Erhardt, Does international Trade cause overfishing, forthcoming in the Journal of the Association of Environmental and Resource Economics. 2017.**

**Copeland B.R. and M.S. Taylor, "Trade, tragedy and the commons," American Economic Review, June 2009, vol. 99(3), pp. 725-49.**

L., Long, Ngo Van, Tian, Juilan Hotte, "International trade with endogenous enforcement of property rights," *J. Dev. Econ.*, vol. 62, pp. 25–54, 2000.

C. W. Clark and G. R. Munro, "The economics of fishing and modern capital theory: a simplified approach," *J. Environ. Econ. Manag.*, vol. 2, no. 2, pp. 92–106, 1975.

Karp, L. and Armon Rezai, "Trade and Resource Policy with Overlapping Generations", University of California Berkeley, July 2013.

D. Levhari and L. J. Mirman, "The great fish war: an example using a dynamic Cournot-Nash solution," *Bell J. Econ.*, pp. 322–334, 1980.

M., Morcom, Charles Kremer, "Elephants," *Am. Econ. Rev.*, vol. 90, pp. 212–234, 2000.

M. S. Taylor and J. A. Brander, "The simple economics of Easter Island: A Ricardo-Malthus model of renewable resource use," *Am. Econ. Rev.*, vol. 88, no. 1. pp. 119–138, 1998.

M. Weitzman, "Free access vs private ownership as alternative systems for managing common property," *J. Econ. Theory*, vol. 8, pp. 225–234, 1974.

R. Cornes, C. F. Mason, and T. Sandler, "The commons and the optimal number of firms," *Q. J. Econ.*, pp. 641–646, 1986.

E. B. Barbier and M. Rauscher, "Trade, tropical deforestation and policy interventions," *Environ. Resour. Econ.*, vol. 4, no. 1, pp. 75–90, 1994.

J. A. Brander, M. S. Taylor, "Open access renewable resources: Trade and trade policy in a two-country model," *J. Int. Econ.*, vol. 44, pp. 181–209, 1998.

M. Datta and L. J. Mirman, "Externalities, market power, and resource extraction," *J. Environ. Econ. Manag.*, vol. 37, no. 3, pp. 233–255, 1999.

A. Emami and R. S. Johnston, "Unilateral resource management in a two-country general equilibrium model of trade in a renewable fishery resource," *Am. J. Agric. Econ.*, vol. 82, no. 1, pp. 161–172, 2000.

J. M. Hartwick, N. Van Long, and H. Tian, "Deforestation and development in a small open economy," *J. Environ. Econ. Manag.*, vol. 41, no. 3, pp. 235–251, 2001.

L. Karp, S. Sacheti, and J. Zhao, "Common Ground Between Free - Traders and Environmentalists," *Int. Econ. Rev.*, vol. 42, no. 3, pp. 617–648, 2001.

**S. Polasky, C. Costello, and C. McAusland, "On trade, land-use, and biodiversity," *J. Environ. Econ. Manag.*, vol. 48, no. 2, pp. 911–925, 2004.**

R. C. Allen, Keay Ian, "The First Great Whale Extinction: The End of the Bowhead Whale in the Eastern Arctic," *Explor. Econ. Hist.*, vol. 38, no. 4, pp. 448–477, 2001.

R. C. Allen, Keay Ian, "Saving the Whales: Lessons from the Extinction of the Eastern Arctic Bowhead," *J. Econ. Hist.*, vol. 64, no. 2, pp. 400–432, 2004.

E. B. Barbier, R. Damania, and D. Leonard, "Corruption, trade and resource conversion," *J. Environ. Econ. Manag.*, vol. 50, no. 2. Elsevier, pp. 276–299, 2005.

E. B. Barbier, "Explaining agricultural land expansion and deforestation in developing countries," *Am. J. Agric. Econ.*, vol. 86, no. 5, pp. 1347–1353, 2004.

C. A. P. Braga, "Tropical forests and trade policy: The cases of Indonesia and Brazil.," *World Bank Discuss. Pap.* 1992., 1992.

M. Bhattacharai and M. Hammig, "Institutions and the Environmental Kuznets Curve for Deforestation: A Cross country Analysis for Latin America, Africa and Asia," *World Development*, vol. 29, no. 6. pp. 995–1010, Jun-2001.

**R. T. Deacon, "Deforestation and the Rule of Law in a Cross-Section of Countries," *Land Econ.*, vol. 70, no. 4, 1994.**

**A. D. Foster and M. R. Rosenzweig, "Economic Growth and the Rise of Forests," *Q. J. Econ.*, vol. 118, no. 2. pp. 601–637, 2003.**

**S. Ferreira, "Deforestation, Property Rights, and International Trade," *Land Econ.*, vol. 80, no. 2, 2004.**

R. López, "The Tragedy of the Commons in Côte d'Ivoire Agriculture: Empirical Evidence and Implications for Evaluating Trade Policies," *World Bank Econ. Rev.*, 1998.

R. López, "Agricultural Intensification, Common Property Resources and the Farm-Household," *Environ. Resour. Econ.*, vol. 11, no. 3–4, pp. 3–4, 1998.

R. López, "Environmental externalities in traditional agriculture and the impact of trade liberalization: the case of Ghana," *J. Dev. Econ.*, vol. 53, no. 1, pp. 17–39, 1997.

Trade and Greenhouse gas emissions from international freight transport, Journal of Environmental Economics and Management, Cristea et al.